

# Status of TSC measurements at Hamburg - I. Nitrogen enriched versus standard FZ material, II. Acceptor removal after irradiation with 5.5 MeV electrons

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Microscopic studies using the Thermally Stimulated Current (TSC) method have been performed on nitrogen enriched and standard n-type FZ samples. The devices were irradiated with 23 GeV protons at the CERN PS and with reactor neutrons at Ljubljana. For the trap filling during the TSC measurement cycles either a forward current of 1 mA was applied or light of 520 nm wave length was injected into the optical window at the p+-electrode. Further first annealing studies were undertaken at 60 °C up to 80 min. In addition I-V and C-V measurements have been compared with the microscopic results. The so far preliminary results indicate that an improvement of the radiation hardness by nitrogen enrichment as reported by P. Kaminski [1] could not be reproduced. More details about the comparison with standard FZ material will be presented.

In the second part first studies and results on TSC measurements on highly Boron doped EPI samples with a thickness of 50 µm and irradiated with 5.5 MeV electrons will be presented. One problem connected in TSC measurements with such highly doped material is the fact that the samples could not always be biased up to total depletion in order to extract exact concentration values. This will be discussed in the talk.

[1] P. Kaminski et al., 30-th RD50 Workshop, June 2017, AGH Krakow, Poland

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